

## WE CLAIM:

- 1 1. A humanized antibody that specifically binds to VT2  
2 and/or VT2 variant
- 1 2. A humanized antibody that specifically binds to the B  
2 subunit of VT2 and/or the B subunit of VT2 variant.
- 1 3. The humanized antibody of claim 1 that neutralizes VT2  
2 and/or VT2 variant.
- 1 4. The humanized antibody of claim 2 that neutralizes VT2  
2 and/or VT2 variant.
- 1 5. A humanized antibody that is a humanized form of mouse  
2 antibody VTm1-1, the mouse antibody being characterized by a  
3 light chain variable region shown in Fig. 1B and a heavy  
4 chain variable region shown in Fig. 1A.
- 1 6. An antibody that competes with mouse antibody VTm1-1 for  
2 specific binding to VT2 and/or VT2 variant.
- 1 7. A humanized antibody of any of claims 1-6 comprising  
2 complementarity determining regions from the mouse VTm1-1  
3 antibody and heavy and light chain variable region  
4 frameworks from the human GF4 antibody heavy and light chain  
5 frameworks, provided that at least one position selected  
6 from the group consisting of L49, H29, H30, H49 and H98, is  
7 occupied by the amino acid present in the equivalent  
8 position of the mouse VTm1-1 antibody heavy or light chain  
9 variable region framework, which humanized antibody  
10 specifically binds to verotoxin II with an affinity constant  
11 between  $10^7$  M<sup>-1</sup> and ten-fold the affinity of the mouse VTm1-1  
12 antibody.

1 8. The humanized antibody of claim 7, provided that each  
2 position selected from the group consisting of L49, H29,  
3 H30, H49 and H98 is occupied by the amino acid present in  
4 the equivalent position of the mouse VTml-1 antibody heavy  
5 or light chain variable region framework.

1 9. The humanized antibody of claim 8, provided that at  
2 least one position selected from the group L3, L4, L19, L76,  
3 L79, L85, H1, H4, H5, H79, H89 and H93 is occupied by an  
4 amino acid present in the equivalent position of a human  
5 antibody heavy or light chain consensus sequence.

1 10. The humanized antibody of claim 9, provided that each  
2 position selected from the group L3, L4, L19, L76, L79, L85,  
3 H1, H4, H5, H79, H89 and H93 is occupied by an amino acid  
4 present in the equivalent position of a human antibody heavy  
5 or light chain consensus sequence.

1 11. The humanized antibody of any of claims 1-6 comprising  
2 a heavy chain variable region shown in Fig. 2A and a light  
3 chain variable region shown in Fig. 2B provided that one or  
4 more positions selected from the group consisting of L49,  
5 H29, H30, H49, H98, L3, L4, L19, L76, L79, L85, H1, H4, H5,  
6 H79, H89 and H93 may be substituted as shown in Tables 2 and  
7 3.

1 12. The humanized antibody of any of claims 1-6, comprising  
2 a heavy chain variable region shown in Fig. 2A and a light  
3 chain variable region shown in Fig. 2B.  
4

5 13. The humanized antibody of any of claims 1-6, comprising  
6 a humanized heavy chain having at least 85% identity with  
7 the humanized heavy chain shown in Fig. 2A and a humanized  
8 light chain having at least 85% sequence identity with the  
9 humanized light chain showing in Fig. 2B, provided that at  
10 least one position selected from the group consisting of

1 L49, H29, H30, H49 and H98, is occupied by the amino acid  
2 present in the equivalent position of the mouse VTm1-1  
3 antibody heavy or light chain variable region framework.

1 14. The humanized antibody of any of claims 1-6, wherein  
2 the antibody comprises two pairs of light/heavy chain  
3 dimers, wherein each chain comprises a variable region and a  
4 constant region.

1 15. The humanized antibody of any of claims 1-6, which is a  
2 Fab fragment or a  $F(ab')_2$ .

1 16. The humanized antibody of any of claims 1-6 in purified  
2 form.

1 17. The humanized antibody of any of claims 1-6, which has  
2 an IgG<sub>1</sub> immunoglobulin isotype.

1 18. A method of producing humanized VTm1-1 antibody,  
2 comprising culturing a cell line, which encodes heavy and  
3 light chain chains of the humanized antibody of any of  
4 claims 1-6, whereby the humanized antibody is expressed; and  
5 recovering the humanized antibody expressed by the cell  
6 line.

1 19. The method of claim 18, further comprising mixing the  
2 antibody with a pharmaceutically acceptable carrier to  
3 produce a pharmaceutical composition.

1 20. A pharmaceutical composition comprising the humanized  
2 antibody of any of claims 1-6 and a pharmaceutically  
3 acceptable carrier.

1 21. A pharmaceutical composition comprising the humanized  
2 antibody of claim 12 and a pharmaceutically acceptable  
3 carrier.

1 22. A method of treating a patient suffering or at risk of  
2 toxic effects from a verotoxin, comprising administering to  
3 the patient an effective dosage of a human or humanized  
4 antibody that specifically binds to verotoxin II and/or  
5 verotoxin II variant.

1 23. The method of claim 22, wherein the antibody competes  
2 with mouse antibody VTm1-1 for specific binding to verotoxin  
3 II or verotoxin II variant.

1 24. The method of claim 22, wherein the humanized antibody  
2 specifically binds to VT2 and/or VT2 variant.

1 25. The method of claim 22, wherein the humanized antibody  
2 specifically binds to the B subunit of VT2 and/or VT2  
3 variant.

1 26. The method of claim 22, wherein the humanized antibody  
2 specifically binds to VT2 and/or VT2 variant and neutralizes  
3 VT2 and/or VT2 variant.

1 27. The method of claim 22, wherein the humanized antibody  
2 specifically binds to the B subunit of VT2 and/or the B  
3 subunit of VT2 variant and neutralizes VT2 and/or VT2  
4 variant.

1 28. The method of claim 22, wherein the antibody is a  
2 humanized antibody, which is a humanized form of the mouse  
3 VTm1-1 antibody.

1 29. The method of claim 22, wherein the antibody is a  
2 humanized antibody comprising a heavy chain variable region  
3 shown in Fig. 2A and a light chain variable region shown in  
4 Fig. 2B.

1 30. The method of claim 22, wherein the patient is infected  
2 with verotoxin producing *E. coli* and the antibody is  
3 administered therapeutically.

1 31. The method of claim 22, wherein the patient is at risk  
2 of infection by verotoxin producing *E. coli* and the antibody  
3 is administered prophylactically.

1 32. The method of claim 30, further comprising monitoring  
2 the patient for recovery from the toxic effects of verotoxin  
3 II or verotoxin II variant.

1 33. A cell line that produces the antibody of any of claim  
2 1-6.